

Serial No. 09/126,330
Amendment dated October 27, 2003
Reply to Office Action of July 27, 2003

Docket No. CLNK-1P6

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A light modulator, comprising:
an input ~~output~~ polarizer for receiving input light and outputting polarized light;
a first color selective polarization modulator for receiving said polarized light and
for selectively modulating the polarization state of at least a first spectrum of said polarized light;
a second color selective polarization modulator for receiving light from said first
color selective polarization modulator, and for selectively modulating the polarization state of
at least a second spectrum of said polarized light; and
an output polarizer for receiving and analyzing the polarization states of said first
and second spectrums, wherein the input polarizer, the color selective polarization modulators
and the output polarizer are optically coupled.
2. (Currently Amended) A light modulator, comprising:
a retarder stack for receiving at least partially polarized light and outputting a first
spectrum having a first polarization and a second spectrum having a second polarization; and

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an electro-optic modulator and retarder combination optically coupled to the retarder stack and having an isotropic state and a modulation state, wherein the electro-optic modulator and retarder combination is adapted to selectively modulate input light that has a polarization state that corresponds to the modulation state of the electro-optic modulator and retarder combination, wherein one of the first and second polarizations correspond to the modulation state of the electro-optic modulator and retarder combination.

3. (Previously Presented) The light modulator of claim 2, wherein the first and second polarizations output by the retarder stack are linear polarizations.

4. (Previously Presented) The light modulator of claim 2, wherein the electro-optic modulator and retarder combination comprises a variable retarder in combination with a passive quarter-wave retarder.

5. (Previously Presented) The light modulator of claim 4, wherein the modulation state is a linear polarization state and the isotropic state is a circular polarization state.

Claims 6-16. (Canceled)

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17. (Previously Presented) A sequencer, comprising:
 - a first modulator stage, comprising:
 - a first input retarder stack for receiving and transforming the polarization of light,
 - a first electro-optic modulator for receiving and selectively modulating the polarization of a portion of light output by the first retarder stack, and
 - a first output retarder stack for receiving and transforming the polarization of light output by the first electro-optic modulator;
 - a second modulator stage, comprising:
 - a second input retarder stack for receiving and transforming the polarization of light,
 - a second electro-optic modulator for receiving and selectively modulating the polarization of a portion of light output by the second retarder stack, and
 - a second output retarder stack for receiving and transforming the polarization of light output by the second electro-optic modulator; and
 - a third modulator stage, comprising:
 - a third input retarder stack for receiving and transforming the polarization of light,

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a third electro-optic modulator for receiving and selectively modulating the polarization of a portion of light output by the third retarder stack, and

a third output retarder stack for receiving and transforming the polarization of light output by the third electro-optic modulator.

18. (Previously Presented) The sequencer of claim 17, wherein the first, second and third modulator stages function substantially independent of each other.

19. (Previously Presented) The sequencer of claim 17, wherein the first, second and third electro-optic modulators exhibit higher chromaticity in a stack-altered mode than in a stack-only mode.

20. (Previously Presented) The sequencer of claim 19, wherein the first, second and third modulator stages each exhibit a filtered state and a neutral state when their respective electro-optic modulators are in the stack-altered mode and the stack-only mode, respectively.

21. (Previously Presented) The sequencer of claim 20, wherein the neutral state is a black state.

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22. (Previously Presented) The sequencer of claim 20, wherein the neutral spectrum is a white state.

23. (Previously Presented) The sequencer of claim 19, wherein the first, second and third modulator stages each exhibit a filtered state and a neutral state when their respective electro-optic modulators are in the stack-only mode and the stack-altered mode, respectively.

24. (Previously Presented) The sequencer of claim 23, wherein the neutral state is a black state.

25. (Previously Presented) The sequencer of claim 23, wherein the neutral state is a white state.

26. (Previously Presented) The sequencer of claim 17, wherein a state of each of the first, second and third modulator stages is switchable between one additive primary filtered state and a neutral state.

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27. (Previously Presented) The sequencer of claim 26, wherein the state of the first, second and third modulator stages is switchable between red and black states, green and black states, and blue and black states, respectively.
28. (Previously Presented) The sequencer of claim 17, wherein a state of each of the first, second and third modulator stages is switchable between one subtractive primary filtered state and a neutral state.
29. (Previously Presented) The sequencer of claim 28, wherein the state of the first, second and third modulator stages is switchable between cyan and white states, magenta and white states, and yellow and white states, respectively.
30. (Previously Presented) The sequencer of claim 17, wherein a peak transmission of one of said first, second and third modulator stages is tunable so that its peak transmission coincides with a peak transmission of a respective filtered state.
31. (Previously Presented) The sequencer of claim 17, wherein the first, second and third electro-optic modulators exhibit higher chromaticity in a stack-only mode than in a stack-altered mode.

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32. (Previously Presented) The sequencer of claim 31, wherein the first, second and third modulator stages each exhibit a filtered state and a neutral state when their respective electro-optic modulators are in the stack-altered mode and the stack-only mode, respectively.

33. (Previously Presented) The sequencer of claim 32, wherein the neutral state is a black state.

34. (Previously Presented) The sequencer of claim 32, wherein the neutral state is a white state.

35. (Previously Presented) The sequencer of claim 31, wherein the first, second and third modulator stages each exhibit a filtered state and a neutral state when their respective electro-optic modulators are in the stack-only mode and the stack-altered mode, respectively.

36. (Previously Presented) The sequencer of claim 35, wherein the neutral state is a black state.

37. (Previously Presented) The sequencer of claim 35, wherein the neutral state is a white state.

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38. (Previously Presented) The sequencer of claim 17, wherein the first input retarder stack is an inverse of the first output retarder stack.
39. (Previously Presented) The sequencer of claim 17, wherein the second input retarder stack is an inverse of the second output retarder stack.
40. (Previously Presented) The sequencer of claim 17, wherein the third input retarder stack is an inverse of the third output retarder stack.
41. (Previously Presented) The sequencer of claim 17, wherein the first, second and third input retarder stacks are inverses of the first, second and third output retarder stacks, respectively.
42. (Previously Presented) The sequencer of claim 17, wherein the first, second and third modulator stages together exhibit a neutral state in the stack-altered mode.
43. (Previously Presented) The sequencer of claim 42, wherein the neutral state is a white state.

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44. (Previously Presented) The sequencer of claim 42, wherein the neutral state is a black state.

45. (Previously Presented) The sequencer of claim 42, wherein the polarization of input light received by the first modulator stage and the polarization of light output by the first modulator stage are matched.

46. (Previously Presented) The sequencer of claim 45, wherein the polarization of the input light is an eigenpolarization of the first modulator stage in the stack-altered mode.

47. (Previously Presented) The sequencer of claim 17, further comprising an analyzing polarizer positioned and oriented to receive and analyze light from the first, second and third modulator stages.

48. (Previously Presented) The sequencer of claim 47, wherein the first, second and third modulator stages each modulate the transmission of a respective spectrum between substantially full transmission and substantially zero transmission.

Claims 49-57. (Canceled)

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58. (Currently Amended) A multi-stage in-line color filter, comprising:
- a first stage for modulating a first spectrum in accordance with a first signal;
 - a second stage for modulating a second spectrum in accordance with a second signal;
 - a third stage for modulating a third spectrum in accordance with a third signal,
- wherein at least one of the first, second and third stages comprises a first retarder stack, a second retarder stack and a modulator positioned between the first and second retarder stacks; and
- an output polarizer.
59. (Currently Amended) The multi-stage in-line color filter of claim 58, wherein the first, second and third stages do not include any interposing polarizers ~~a polarizer~~.
60. (Previously Presented) The multi-stage in-line color filter of claim 59, wherein the first, second and third stages modulate the polarization of the first, second and third spectrums, respectively, in accordance with the first, second and third signals, respectively.
61. (Previously Presented) The multi-stage in-line color filter of claim 58, wherein the first, second and third stages modulate the transmittance of the first, second and third spectrums, respectively.

62. (Previously Presented) The multi-stage in-line color filter of claim 61, wherein the transmittance of the first, second and third spectrums is continuously variable in accordance with the first, second and third signals, respectively.

63. (Previously Presented) The multi-stage in-line color filter of claim 58, wherein the first, second and third stages are each variable saturation filters.

64. (Previously Presented) The multi-stage in-line color filter of claim 58, wherein the first, second and third stages are each variable luminance filters.

Claims 65-66. (Canceled)

67. (Previously Presented) A method of modulating light with a variable retarder using retarder stacks for transforming light into two linear polarization states with two spectra, comprising the steps of:

arranging a first retarder stack which yields a first and second linear polarization with first and second spectra;

arranging a retarder which transforms the second linear polarization into elliptical polarization; and

arranging a variable retarder to receive the elliptical polarization and the first polarization.

68. (Previously Presented) The method of claim 67, wherein the elliptical polarization is circular polarization, and the second polarization is linear polarization.

69. (Previously Presented) The method of claim 67, wherein the elliptical polarization is a modulation state for the variable retarder.

70. (Previously Presented) The light modulator of claim 2, wherein the retarder stack comprises retarders welded together by chemical bonding.

71. (Previously Presented) The light modulator of claim 70, wherein the welded retarders are polycarbonate sheets.

72. (Previously Presented) The light modulator of claim 71, wherein the welded retarders are welded together using methylene chloride.

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73. (Previously Presented) The light modulator of claim 72, wherein a dope is formed of polycarbonate dissolved in methylene chloride.

Claims 74-77. (Canceled)

78. (Previously Presented) The sequencer of claim 17, wherein at least one of the first input retarder stack, the second input retarder stack, the third input retarder stack, the first output retarder stack, the second output retarder stack, and the third output retarder stack comprises retarders welded together by chemical bonding.

79. (Previously Presented) The sequencer of claim 78, wherein the welded retarders are polycarbonate sheets.

80. (Previously Presented) The sequencer of claim 79, wherein the welded retarders are welded together using methylene chloride.

81. (Previously Presented) The sequencer of claim 80, wherein a dope is formed of polycarbonate dissolved in methylene chloride.

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Claims 82-89. (Canceled)

90. (Previously Presented) The multi-stage in-line color filter of claim 58, wherein at least one of the first stage, the second stage, and the third stage comprises a retarder stack, the retarder stack comprises retarders welded together by chemical bonding.

91. (Previously Presented) The multi-stage in-line color filter of claim 90, wherein the welded retarders are polycarbonate sheets.

92. (Previously Presented) The multi-stage in-line color filter of claim 91, wherein the welded retarders are welded together using methylene chloride.

93. (Previously Presented) The multi-stage in-line filter of claim 92, wherein a dope is formed of polycarbonate dissolved in methylene chloride.

Claims 94-97. (Canceled)

98. (Previously Presented) The method of claim 67, wherein the first retarder stack comprises retarders welded together by chemical bonding.

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99. (Previously Presented) The method of claim 98, wherein the welded retarders are polycarbonate sheets.

100. (Previously Presented) The method of claim 99, wherein the welded retarders are welded together using methylene chloride.

101. (Previously Presented) The method of claim 100, wherein a dope is formed of polycarbonate dissolved in methylene chloride.